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ARIZONA CORPORATION COMMISSION
OFFICE OF CHAIRWOMAN LEA MÁRQUEZ PETERSON

July 9, 2021

RE: In the matter of the Arizona Corporation Commission Investigation into Potential Improvements to its Water Policies (Docket No. W-00000C-16-0151)

My Fellow Commissioners, Staff, and All Interested Parties:

Given the impending shortage declaration on the Colorado River, I am concerned immediate action needs to be taken in order to secure our scarce water resources and ensure that our state's infrastructure and economy will be strong and resilient for the challenges ahead.

For the reasons discussed in greater detail below, I will be placing an item on the Regular Open Meeting in July to institute an annual "Water Preparedness Meeting" similar to the annual "Summer" and "Winter" "Preparedness Meetings" the Commission currently hosts for regulated electric and gas utilities. This meeting would give the Commission an opportunity **to** receive updates and comprehensive plans from our regulated water service providers on an annual basis regarding their water adequacy issues and solutions and infrastructure plans.

In addition, I would like to discuss the opportunity to establish or reestablish a task force similar to the Water Task Force the Commission established in 1998, which would address the most pressing issues of our time and report back to the Commission on a regular basis with meaningful recommendations and solutions that the Commission could adopt to secure our resilient economic growth into the future.

As water scarcity and infrastructure are an immediate concern, time is of the essence.

The State of Water Scarcity Today

In the last few months, water levels at Lake Mead and Lake Powell have fallen to their lowest levels since the lakes' initial fillings in 1933 and 1963.[1] Drought and temperature conditions caused by regional climate change in the West have worsened to such a degree that state leaders are expecting the Bureau of Reclamation to declare a shortage on the Colorado River by August 2021.[2]

The cascade of effects that will likely follow from such a declaration will be felt across our entire economy and require immediate reductions and requests to conserve. Due to their water usage, agricultural and irrigation operations will likely be asked to curtail their usage first,[3] which will present unique challenges for state leaders, as their businesses represent up to 1.7 percent of the state's GDP.[4]

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[1] Ian James, *'Red alert': Lake Mead falls to record-low level, a milestone in Colorado River's crisis*, Ariz. Republic (June 11, 2021, 1:53 PM), https://www.azcentral.com/story/news/local/arizona-environment/2021/06/10/lake-mead-declines-new-low-colorado-river-crisis-deepens-arizona-drought/7621138002/; Shannon Handy, *Lake Powell's water level at lowest in decades*, CBS 8 (June 17, 2021, 6:42 PM), https://www.cbs8.com/article/news/local/lake-powells-water-level-lowest-in-decades/509-edda50d8-76ad-4c5e-a15c-b4db3b5f2ccc.

[2] Luke Runyan, *With first Colorado River shortage almost certain, states stare down mandatory cutbacks*, Cronkite News (Apr. 19, 2021), https://cronkitenews.azpbs.org/2021/04/19/with-first-ever-colorado-river-shortage-almost-certain-states-stare-down-mandatory-cutbacks/

[3] Felicia Fonseca, *Arizona farmers to bear brunt of cuts from Colorado River*, AP News (Apr. 29, 2021), https://apnews.com/article/colorado-river-arizona-financial-markets-business-environment-and-nature-e25726e07f3f0f5b88d683ff0772a7ab.

[4] Arizona Economic Contribution and Impact Report, Univ. of Ark. Econ. Impact of Agric. (last visited July 8, 2021), https://economic-impact-of-ag.uada.edu/arizona/

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With drought, heat, and wildfires reaching a critical mass this summer, it is possible that we may be approaching a turning point in our state's history, at the Commission, and with the infrastructure our state's economy relies on to sustain itself and grow. As changing conditions are almost certain to have an impact on our local water and electric service providers, I see significant water and energy challenges looming on the horizon. The Commission has always been aware of the relationship between energy and water in our state and the impact that our water resources have on energy, and vice versa.

Importance of Water Conservation at the Commission

As commissioners, we set rates for not only the water service providers that provide essential water supplies to our residential and irrigation customers, but also the electric service providers that supply critical peaking and baseload power to those water service providers. With the safe and reliable power that our electric service providers supply to our regulated water utilities at affordable rates, our regulated water services are able to safely and reliably pump, treat, and distribute water resources to their respective customers at affordable rates.

The traditional, steam-turbine based power plants that keep our state's economy growing and groundwater pumps pumping use a significant amount of water. The Commission's past IRP revisions and empirical studies on the "water-energy nexus" have produced clear data as to the volume of water consumed in electricity generation and have helped the Commission better understand its relationship with conservation. We have supported utilities pursuing dry-cooling options and renewable energy resources, whenever reliable and economically feasible, in the construction and procurement of new generation. And we have pursued clean energy objectives that both reduce our state's carbon footprint and consumption of water resources. A brief history of the Commission's actions on water conservation can be found in Appendix A.

Conserving water is not just about conservation for conservation's sake. Conservation of water also protects Arizona's public health and safety and ensures that safe and reliable power, such as that which comes from hydroelectric power, can be maintained for vulnerable populations during periods of severe weather. Maintaining access to our critical hydroelectric power resources (such as hydroelectric dams on the Colorado,[5] Salt,[6] and Gila[7] Rivers, among others), is essential to providing enough supply to survive Arizona's heat. These dams, when sufficiently filled, provide flexible, dispatchable power to Arizona's families and small businesses during the times of day when temperatures are highest and power is needed most to keep homes and buildings cool. When overconsumption and extended droughts cause water levels to drop below their designated thresholds however, the pressure becomes insufficient to generate power and can render some hydroelectric resources inoperable,[8] which can lead to rolling blackouts.[9]

In addition, water loss and leaks in our water service providers' aging pipes and infrastructure reduce our water supplies and simultaneously increase our energy usage. As much as 10 percent of regulated water utilities' annual operating expenses can be attributable to the utility's monthly electric bills ("Purchased Power Expense"). Thus, every drop of water that doesn't make it to an end customer ultimately results in additional gallons and electricity being wasted. This works against our efforts both to conserve and to ensure affordable rates.

Ultimately, utilizing energy-efficient water infrastructure and shifting times of pumping and irrigation to off-peak hours helps both water service providers and customers save on costs. Moreover, because water and energy are inextricably connected, I believe efforts to conserve energy or water by one service provider ultimately help to

[5] Glen Canyon Dam (1,320 MW); Hoover Dam (2,080 MW); Davis Dam (251 MW); and Parker Dam (120 MW).
[6] Roosevelt Dam (36 MW); Horse Mesa Dam (97 MW); Mormon Flat (50 MW); and Stewart Mountain (13 MW).
[7] Coolidge Dam (10 MW).
[8] https://wrrc.arizona.edu/drought-diminishes-hydropower.
[9] Katherine Blunt & James Carlton, *West Risks Blackouts as Drought Reduces Hydroelectric Power*, Wall St. J. (June 18, 2021, 8:32 AM), https://www.wsj.com/articles/west-risks-blackouts-as-hydroelectric-power-dries-up-11624008601?reflink=desktopwebshare_permalink.

conserve energy or water by another. The benefits of conservation should extend to not only our regulated utilities, but also to their customers.

Moving Forward

As we lead into 2022, the construction of new and resilient infrastructure will be as critical to Arizona's success and survival as the need to conserve will be unavoidable. We have always known the challenges that were coming, but with our understanding we have likely never been more ready to tackle these challenges head-on than we are today.

Using what we know from the past, I believe we are well positioned to address the challenges that loom in our near future. However, there is still more that can be done to ensure the safety of our state's future.

While the Commission should not impose undue burdens on utilities and customers that don't have adequate resources, some unpopular actions may need to be taken. In the coming years, hard decisions will need to be made to keep our economy moving in the right direction while fortifying us and our scarce natural resources against the real challenges of regional climate change. A combination of both existing and new measures, both measures that the Commission has explored in the past and measures that the Commission has not considered, may need to be implemented in order to emerge from the next 10-15 year projection unscathed and with our strong competitive advantage.

Given the impending shortage declaration on the Colorado River, as a first step I will be placing an item on the July Regular Open Meeting to give my fellow commissioners an opportunity to decide whether we should implement an annual "Water Preparedness Meeting" to ensure that we have adequate water supplies for this summer and beyond.

Given the breadth of challenges ahead of us, I would also like to discuss the opportunity to establish or reestablish a task force similar to the Water Task Force the Commission established in 1998, to address the questions and proposals attached in Appendix 2, as well as any other questions or proposals my fellow commissioners may have, and report back to the Commission with feedback and recommendations on those proposals. Should a majority of the Commission agree with this proposal, the Commission can determine who will serve on the task force and how often it should report back to the Commission.

I look forward to having comprehensive discussions on these matters in the future and hope to find innovative solutions together.

Sincerely,

Lea Márquez Peterson
Chairwoman

APPENDIX 1

History of Commission Action

1998 - Establishment of the Water Task Force:[10] Due to changes threatening water costs, the Commission established this task force to address conservation efforts and develop a statewide water policy.

2000 - Refinement of the Water Task Force:[11] The Commission adopted Staff's recommendations on some changes to the task force and directed Staff to work with stakeholders to develop new policy statements regarding water conservation and supply.

2000 - Consideration of Tiered Water Rates:[12] The Commission directed staff to evaluate tiered water rates that would encourage conservation. Specifically, Staff was directed to consider Inverted three-tiered block commodity rates, which are designed to promote conservation by allowing customers who conserve to realize cost savings while high water users will pay a greater portion of the costs that increased usage places on the water system. At the time, the Commission stated that "[t]iered rates are the Commission's only direct means of encouraging conservation."[13] The Commission noted that "[p]ricing/rate design is the Commission's primary means of encouraging conservation."[14]

2001 - Four new water policies proposed:[15] Staff proposed four water policy changes: Granting of CC&N's to water service providers; acquisition of small water utilities by larger utilities; implementation of tiered rate designs to promote conservation among large water users; and the recovery of costs associated with CAP allocations. The Commission did not adopt these policies, but they have continued to influence Commission policy.

2010 - Reinstatement of Integrated Resource Plans: In 2010 the Commission reinstated its previously-paused[16] integrated resource planning process ("IRPs") and added a requirement that Arizona's electric service providers account in their respective IRPs for the cost and amount of water that their respective power plants consume.[17] In the same year, the Commission directed the state's two largest regulated electric service providers, Arizona Public Service ("APS") and Tucson Electric Power ("TEP"), to conduct a joint study on the water-energy nexus in Arizona[18] and incorporate their findings into their 2012 IRPs.[19]

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[10] *See* In the matter of Establishing the Commission Water Task Force, Docket No. W-00000C-98-0153, Decision No. 60829 (Apr. 24, 1998).
[11] *See* In the matter of Establishing the Commission Water Task Force, Docket No. W-00000C-98-0153, Decision No. 62993 (Nov. 3, 2000).
[12] Id.
[13] Id.
[14] *See* In the matter of Establishing the Commission Water Task Force, Docket No. W-00000C-98-0153, *Memorandum from the Utilities Division, Attachment C* (Jun. 29, 2001), available at: https://docket.images.azcc.gov/0000080242.pdf?i=1624407226986.
[15] *See* In the matter of Establishing the Commission Water Task Force, Docket No. W-00000C-98-0153, Memorandum from the Utilities Division (Jun. 29, 2001), available at: https://docket.images.azcc.gov/0000080242.pdf?i=1624407226986.
[16] *See* In the matter of A.A.C. R14-2-704 Hearing for Integrated Resource Planning 1995, Docket No. U-00000-95-0506, Decision No. 60385 (Aug. 29, 1997) (adopting a one-year pause on IRPs due to the advent of retail electric competition and the passage of the Commission's electric competition rules in 1996) and Procedural Order (Mar. 15, 1999) (adopting an indefinite pause on IRPs due to the advent of retail electric competition and the passage of the Commission's electric competition rules in 1996).
[17] *See* In the matter of the Notice of Proposed Rulemaking Regarding Resource Planning, Docket No. RE-00000A-09-0249, Decision No. 71722 (Jun. 3, 2010).
[18] *See* In the matter of the Application of APS for Approval of its 2011 Renewable Energy Standard Implementation Plan and Distributed Energy Administrative Plan and Request for Renewable Energy Adjustor, Docket No. E-01345A-10-0262, Decision Nos. 72022 (Dec. 12, 1010) and 72174 (Feb. 11, 2011); *see also* id., *Correspondence from APS* (Apr. 11, 2012); In the matter of the Application of TEP for Approval of its 2010 Renewable Energy Standard Implementation Plan and Distributed Energy Administrative Plan and Request for Reset of Renewable Energy Adjustor, Docket No. E-01933A-10-0266, Decision No. 72033 (Dec. 10, 2012); *see also* id., *Notice of Compliance Filing* (Sep. 1, 20211).
[19] *See* In the matter of Resource Planning and Procurement in 2011 and 2012, Docket No. E-00000A-11-0113, *APS 2012 IRP* (Mar. 30, 2012) and *TEP 2012 IRP* (Apr. 2, 2012); *see also Energy and Water in the Western and Texas Interconnections* (Oct. 11, 2012).

2017 - Adoption of Water Loss Policy:[20] The Commission adopted "The Commission's Water Loss Policy for the Betterment of Water Conservation" to manage water loss. In addition to setting standards for 10 or 15 percent water loss, the policy directed Staff to conduct additional research on the water-energy nexus and find ways water utilities could further reduce their electric consumption and Purchased Power Expense.[21]

2017 - APS Rate Case and Federal Programs: In 2017, the Commission directed APS to partner with local water utilities and propose in its 2018 Demand-Side Management ("DSM") Implementation Plan one or more programs that could help Arizona's water utilities save on both water and energy.[22] Meanwhile, commissioners looked to leverage some proposed federal initiatives to promote efficient use of water in Arizona.[23]

2018 - Arizona Energy Modernization Plan Proposal: A 2018 study reviewed by the Commission indicated that achieving 80 percent clean energy by 2050 would save as much as 43.9 billion gallons of water (135,000 acre-feet, double the amount of water in Saguaro Lake) by 2032 and between 138 to 232 billion gallons of water (423,000-713,000 acre-feet, roughly equal to the amount of water in Apache Lake or Lake Havasu) by 2050.[24]

2020 - Consideration of DSM and Energy Efficiency Programs for Consumers:[25] The Commission considered implementing DSM and Energy Efficiency programs for consumers with connected electric water heater and pool pump controls.

2021 - APS DSM Plan application:[26] With APS's application the Commission considered the Tribal Communities Energy Efficiency Program. This program would provide free kits with energy- and water-saving measures and education for customers to install these items themselves. It would also expand current work with Red Feather Development Group to include installing low-flow shower heads and other general energy and water efficiency measures.

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[20] *See* In the matter of the Commission's Investigation into Improving the Commission's Water Loss Policy for the Betterment of Water Conservation, Docket No. W-00000A-17-0152, Decision No. 76375 (Sep. 19, 2017).
[21] *See* Docket No. W-00000A-17-0152, Decision No. 76375 (Sep. 19, 2017).
[22] *See* In the matter of the Application of APS for a Hearing to Determine the Fair Value of the Utility Property of the Company for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon, to Approve Rate Schedules Designed to Develop Such Return, Docket No. E-01345A-16-0123, *Commissioner Andy Tobin's Proposed Amendment No. 2* (Aug. 14, 2017), adopted in Decision No. 76295 (Aug. 18, 2017); *see also* In the matter of the Application of APS for a Ruling Related to its 2018 DSM Implementation Plan, Docket No. E-01345-A-17-0134, *Application for Approval of APS's 2018 DSM Implementation Plan* (Sep. 1, 2017) (proposing programs related to the water-energy nexus including leak reduction and pumped storage).
[23] See e.g., 115th Congress, 2017, HR 3275, SB 1460, SB 1696, and SB 1700.
[24] *See* In the matter of an examination into the Modernization and Expansion of the Arizona Renewable Energy Standard and Tariff, Docket No. E-00000Q-16-0289, *Comments of Western Resource Advocates* (Sep. 19, 2018); *see also* From the Office of Commissioner Andy Tobin, *Calculations Show Arizona Energy Modernization Plan Could Save Arizona Billions of Gallons of Water* (Sep. 10, 2018), available at: https://web.archive.org/web/20190614201436/https://www.azcc.gov/divisions/administration/news/2018releases/9-20-18-tobin-az-energy-modernization.asp.
[25] In the matter of the Application of Arizona Public Service Company for a Ruling Relating to its 2020 Demand Side Management Implementation Plan, Docket no. E-01345A-19-0088, Decision No. 77763 (Oct. 2, 2020).
[26] *Application for Approval of Arizona Public Service Company's 2021 Demand Side Implementation Plan*, Docket No. E-01345A-20-0151. (Dec. 31, 2020).

APPENDIX 2

Questions & Proposals for a More Resilient Energy & Water Future

To help us be as informed and prepared as possible, I would like Staff and all interested parties (or the task force described above, if established by the Commission) to review and provide comments on the four water policies proposed by the Water Task Force pursuant to Decision 62993 (Nov. 3, 2000)[27] and describe whether the Commission should adopt them as proposed or modify them to meet current needs and then adopt them.

I would also like Staff and all interested parties to respond to the following options, proposals, and questions regarding the water-energy nexus in Arizona:

1. Energy Efficiency & Demand-Side Management

    a. In June of this year, SSVEC proposed an Advanced Water Pump Efficiency program for its irrigation and other customers.[28] I'd like to see this proposal evaluated and brought before the Commission.

    b. I would like to see other electric distribution cooperatives consider and propose DSM programs similar to those proposed by SSVEC above, as well.

    c. What other proposals exist to promote energy efficient water pumps and infrastructure?

    d. What other proposals exist to promote connected water heaters, pool pumps, and low-flow shower heads and faucets?

    e. What other proposals exist to improve and install leak detection systems on water utility meters?

2. Water Loss & Conservation

    a. Given the growing scarcity of water in the region, I believe the Commission should institute an annual water preparedness meeting similar to the summer and winter preparedness meetings the Commission hosts for electric and gas utilities. What would be the scope of such a meeting and at what time of year should the Commission host it?

    b. How do we ensure that all water utilities, including smaller utilities, are included in the above proposed meeting?

    c. What are the pros and cons of electric TOU and demand rates that promote pumping water during off-peak hours by regulated water utilities, and seasonal use rates that promote off-season use by seasonal agricultural customers?

    d. What are the costs and benefits of updating the water loss policy from 10 to 5 percent water loss?

[27] *See* In the matter of Establishing the Commission Water Task Force, Docket No. W-00000C-98-0153, Memorandum from the Utilities Division (Jun. 29, 2001), available at: https://docket.images.azcc.gov/0000080242.pdf?i=1624407226986.
[28] *See* In the matter of the application of Sulphur Springs Electric Cooperative, Inc. for approval of the 2018/2019 DSM/EEE implementation plan, Docket No. E-01575A-17-0164.

e. What actions can the Commission take to promote conservation while mitigating the impact to utilities that are not revenue decoupled?

f. What are the pros and cons of performance incentive mechanisms that allow regulated water customers to participate in, and share in a portion of the benefits of, off-system sales of water to non-Commission jurisdiction entities coupled with efforts to recharge Arizona's groundwater supplies in Active Management Areas?

g. What are the pros and cons of commission policy on purchased water and power adjuster mechanisms that build-in a performance incentive mechanism for the relevant utility to conserve and reduce costs to customers?

h. What are the pros and cons of implementing TOU and Demand-Based rates for irrigation and other water service customers that incentivize pumping and storing water during off-peak hours?

i. What are the pros and cons of establishing a seasonal peak water rate to allow for higher water costs during the times of the year when water is most scarce and most expensive?

j. What are the pros and cons of implementing inverted tier water rates and TOU or Demand-Based water rate plans or tariffs that align with electric on and off-peak hours?

3. Resilient & Reliable Infrastructure

a. What are the pros and cons of implementing and promoting Advanced Meter Infrastructure for drinking water service providers?

b. I would request that the Commission's Utilities Division cartographer develop and provide a map to each electric service provider showing the Commission-regulated water service providers operating in their respective CC&Ns as well as upload and make available to the public this map on the Commission's website.

c. I would like to implement an investigation of drought, heat, and wildfire resistant and resilient infrastructure and infrastructure needs in the next five years

d. I would like each Class A water utility to develop a utility-specific capital improvement plan and five-year infrastructure needs assessment that addresses the water scarcity and resource adequacy issues discussed in this letter.

e. What are the pros and cons of the development of larger CC&N areas and certainty and regional master plans and interconnection agreements?

f. What are the pros and cons of the Commission's policy on ATCs and AOCs as conditions antecedent to certification as a fit and proper water service provider?

g. What are the pros and cons of battery storage systems and back-up generators for pumps for water utilities?

h. What are the pros and cons of the commission policy on SIB and SIB adjuster mechanisms?

i. For electric utilities, please respond to the following issues: addressing peak demand, grid resiliency, heat-island effect, and ADEQ non-attainment, including but not limited to: electric

vehicle charging station overhaul; community support for drought-resistant, locally-adapted, low BVOC-emitting or VOC-absorbing shade trees and urban canopy development; transmission and distribution modernization and optimization; and load-building and demand response for small and large commercial and industrial customers.

j. I would like to initiate a commission evaluation on cost of capital and debt; determination of future operating margins and returns necessary to prepare Arizona for a future with increased temperatures, drought, and wildfires and fortify areas with high projected growth.

k. How does drought and conservation relate to stream adjudications, water rights, CAWS, and DAWS in the context of and electric water utilities.

l. Ongoing questions regarding consolidation and acquisitions.